

Detection of Cervical Cancer Among the Medically Indigent

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PITTSBURGH, PA., has one of 20, 14-step cervical cancer control programs now operating in the United States and Puerto Rico. These are community cancer demonstration projects made possible through grants from the Public Health Service's Division of Chronic Diseases. The intention of this program is to provide cervical cancer detection for medically indigent women aged 20 years and over in Allegheny County.

Allegheny County, in which the city is located, has a population of more than 1½ million persons, but it does not have a general municipal hospital. Indigent patients receive care at the clinics of voluntary hospitals and in the offices of private physicians. Papanicolaou smears are taken routinely on women attending antepartum and gynecology clinics in three of these hospitals. Since approximately 23,000 women 20 years of age and over receive public assistance from the county, and perhaps an equal number have low incomes, the available clinic facilities are adequate for only a small portion of those needing them.

Methods and Materials

In planning the program we were faced with the question of how to reach women with low or no incomes without attracting others. The standard communication media, such as news-

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papers, television, radio, and placards in public places may influence middle-class women but are unlikely to be effective in motivating the group we planned to serve. Middle-income women are not accepted at our clinics, although they are encouraged to see a private physician.

We started the program in the fall of 1962 by mailing notices with the welfare checks and requesting women to return a portion of the notice if they wished a clinic appointment. More than 3,500 women came to the clinic as a result of this mailing. Others attended after they were contacted personally by caseworkers, public health nurses, or visiting nurses. Clinics were established in different parts of the county for the express purpose of providing pelvic examinations and cytology. Twelve regular clinics are now functioning. Additional special clinics are provided on a short-term basis for particular groups, such as residents of public housing projects.

Portable equipment, used at some of these clinics, includes a folding examination table, disposable gloves (Becton, Dickinson, and Co.), and disposable plastic speculums (Burnett Instrument Co.). The convenience of using disposable supplies in these outlying locations more than compensates for the slight additional cost.

A minority of the patients are screened through existing facilities such as Planned Parenthood clinics and the venereal disease clinics of the health department. A few women are seen because they are members of captive groups, such as the State tuberculosis hospital or the county detention home.

At all clinic locations a trained interviewer

Table 1. Distribution of cytological classifications for patients who routine second and third examinations, by race, Allegheny County,

Smear class	Initial examination						Second examination					
	White		Nonwhite		Total		White		Nonwhite		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
I.....	2,406	34.9	2,558	36.1	4,964	35.5	556	28.0	685	26.1	1,241	26.9
II.....	4,307	62.5	4,300	60.7	8,607	61.5	1,392	70.1	1,870	71.4	3,262	70.8
II repeat.....	111	1.6	178	2.5	289	2.1	22	1.1	44	1.7	66	1.4
III and IV.....	44	.6	32	.5	76	.5	5	.3	8	.3	13	.3
Unsatisfactory and not done.....	24	.3	21	.3	45	.3	12	.6	13	.5	25	.5
Total.....	6,892	99.9	7,089	100.1	13,981	99.9	1,987	100.1	2,620	100.0	4,607	99.9

¹ A total of 14,010 patients were examined; the race of 29 was unknown.
NOTE: The cytological classifications are defined on this page.

obtains a medical and social history from each patient. Questions are asked which will give information pertinent to the epidemiology of cervical cancer. All charts are coded and an IBM card is punched for each chart.

Following the interview the patient is given a pelvic examination by a physician and two cytological specimens are taken: one is a scraping from the squamo columnar junction taken with an Ayre spatula, and the other is a cell sample from the endocervical canal taken with a cotton-tip swab. Spray cyte (Clay-Adams Inc.) is applied immediately to prevent drying.

All smears are read in the cytology laboratory of the Magee-Womens Hospital by trained cytotechnicians under the supervision of a pathologist. The following cytological classifications are used in this laboratory.

Class I. No cytological abnormalities.

Class II. Cytological changes are present but are not suspicious of malignancy. The most frequent changes are those associated with inflammation, trichomoniasis, monilia, reactive endocervical cells, metaplasia, and hormonal irregularities.

Class II repeat. The majority of these smears contain dyskaryotic cells at the superficial and intermediate level. This is not suggestive of malignancy, but usually indicates a reactive change due to inflammation, trichomoniasis, mechanical trauma, pregnancy, or recent surgery. Since the natural history of the dyskary-

otic lesion is not predictable, repeat smears must be taken. A certain percentage develop into more serious lesions (1-5).

Class III. Dyskaryosis is usually present at all levels of the epithelium. Basal or parabasal cells as well as the more superficial layers are involved. Although the anticipated histological lesion is dysplasia, carcinoma in situ may be present.

Class IV. Cells which appear to be malignant are present.

The followup of patients with abnormal cytology may be considered in two phases: the procedures used to convince the patient to return to a medical facility and the diagnostic measures which are undertaken.

Negative smears (class I and II). A letter is sent to the patient within a month after her clinic visit stating that her "Pap" test was satisfactory and that she should obtain the examination and test each year. She receives an appointment notice the following year.

Abnormal smears (II repeat, III, and IV). A nurse contacts the patients with abnormal smears. When the nurse receives the cytology report, she telephones the patient, explains the report to her, and recommends a course of action. If the patient has no telephone, she is requested by mail to telephone the nurse. If repeated letters are ignored, health department nurses or visiting nurses visit the patient at home.

**received initial examination and
November 1962–June 1965**

Third examination					
White		Nonwhite		Total	
Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent
111	22.6	133	20.1	244	21.1
376	76.6	522	78.7	898	77.8
3	.6	4	.6	7	.6
0	.0	0	.0	0	.0
1	.2	4	.6	5	.4
491	100.0	663	100.0	1,154	99.9

The clinical evaluation of patients with abnormal smears is as follows:

Class II repeat. Since many of these women require treatment of cervical and vaginal infections, cervical erosions, or hormonal depletion before a repeat smear is taken, they are referred to a clinic at the Magee-Womens Hospital for therapeutic or diagnostic procedures. Repeat smears are taken at 3- to 6-month intervals until the smear reverts to negative or becomes class III or IV. If negative status is achieved, the patient is then examined at 6-month to yearly intervals. If the patient develops a class III or IV smear, a biopsy is performed as indicated below.

Class III. This classification requires an immediate repeat smear and a punch biopsy, if a gross lesion is apparent. If the second smear report is also class III and the punch biopsy does not reveal invasive cancer, a cone biopsy is done. Some patients receive a cone biopsy on the basis of one class III smear, depending on both cytological considerations and personal factors relating to the patient.

Class IV. Cone biopsy is performed.

Observations

From November 1962 through June 1965, 14,010 women were given an initial examination. Of these women, 4,607 had one routine yearly repeat examination and 1,154 returned

for a third yearly examination. All patients who returned for routine second or third examinations had class I or II smears (negative for malignancy) on all prior examinations. Patients with abnormal cytological findings, class II repeat, III, or IV, are followed separately from those who receive routine yearly followup.

Table 1 presents the distribution of cytological classifications. The frequency of abnormal smears, class II repeat, III, and IV, decreased with each yearly repeat examination. On the third routine examination none of the women had class III or IV smears. Less than 3 percent of the women had an abnormal smear on initial screening. The prevalence of class III and IV smears was 2 per 1,000. Nonwhites had a slightly higher rate of II repeat cytology than whites on both the first and second examinations.

The shift in proportions of class I and II smears from the first to the third examination is numerically interesting, but probably not biologically significant. The allocation of cytological specimens into classes I or II is left to the discretion of the cytotechnician reading the smear. Since the beginning of our program there has been a complete change in personnel in the cytology laboratory, which probably accounts for the recent emphasis on class II readings. This variability in criteria for classification has not occurred in the abnormal smear classes, because all slides with questionable cells are reviewed by the pathologist.

The incidence of cervical cellular abnormalities as measured by the class II repeat smear is 6 per 1,000 per year, as determined by the third yearly examination. The second routine examination defines both incidence and errors from the previous year. Abnormalities may have existed at the time of the first examination but were not detected either through faulty taking or reading of smears. The possibility of such technical problems causing false negative smears in the same patient for two consecutive years is extremely remote. The third routine smear gives a minimum estimate of cellular change (from normal to abnormal) which has occurred over a 1-year period.

The distribution of patients by age and race is shown in table 2. The population was divided almost equally between white (49.3 percent) and nonwhite (50.7 percent) women on

Table 2. Age and race distribution of patients who received routine second and third examinations, Allegheny County,

Age group (years)	Initial examination						Second examination					
	White		Nonwhite		Total		White		Nonwhite		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
29 and under	2, 185	31. 7	2, 655	37. 5	4, 840	34. 6	444	22. 3	733	28. 0	1, 177	25. 5
30-44	2, 718	39. 4	2, 720	38. 4	5, 438	38. 9	887	44. 6	1, 127	43. 0	2, 014	43. 7
45-59	1, 322	19. 2	1, 102	15. 5	2, 424	17. 3	439	22. 1	473	18. 1	912	19. 8
60 and over	667	9. 7	612	8. 6	1, 279	9. 1	217	10. 9	287	11. 0	504	10. 9
Total	6, 892	100. 0	7, 089	100. 0	13, 981	99. 9	1, 987	99. 9	2, 620	100. 1	4, 607	99. 9
Mean age	39		37		38		41		39		40	

¹ A total of 14,010 patients were examined; the race of 29 was unknown.

the initial screening. The nonwhite women predominated slightly at the second and third examinations where they comprised 56.9 percent and 57.5 percent of the population.

The nonwhites were slightly younger than the whites. The mean age on first examination was 38 years and on third examination 44 years. The older patients were more likely to return for repeat examinations than the younger ones.

Table 3 shows age-specific rates for the abnormal smear classifications. Class III and IV smears occurred more frequently among white women in each age group except for the age 60 and over group, in which no III or IV smears occurred among 667 white women and 10 occurred among 612 Negro women. The probability of this difference occurring by chance is less than 0.001.

The class II repeat smears presented a different pattern from the III and IV smears. The II repeat rate was higher among nonwhites than whites in every age group. For nonwhites, the highest rate was in the 29 and under age group, and decreased with increasing age.

The management of patients with abnormal smears in most instances followed the procedures outlined in the "Material and Methods" section of this report. The results of this followup are presented in table 4. Most of the histological diagnoses were made by cone biopsy; a few were made by punch biopsy only or from a specimen taken during surgery. A few

patients, whose only abnormal smear was class II repeat, had surgery done for reasons unrelated to the II repeat cytology. The specimens taken during surgery revealed either "no malignancy" or "dysplasia" in the cervixes. The only exception was a patient with carcinoma in situ diagnosed by cone biopsy following three class II repeat smears.

A review of the cytological findings indicated that the smears were under-classified. No other patient with an initial class II repeat smear has had cancer unless a repeat smear was class III or IV. The one patient with an initial II repeat smear who refused biopsy has had two subsequent class III smears.

The two "other cancers" were both ovarian carcinomas that were unrelated to the II repeat cytology. Surgery was performed because of an adnexal or cul-de-sac mass, and histological section of the cervix revealed chronic cervicitis.

Patients in the "cytological followup" categories have not had histological diagnoses. Included under the "class II repeat" category are patients with an initial II repeat who were not yet due for repeat examination or who had repeated cytological findings which persisted at the II repeat level.

Women in the "class I or II" category are those who had reverted to a negative cytological status on repeated examinations.

The "lost to cytological followup" group includes 22 women who, when last examined,

**initial cytological examination and
November 1962–June 1965**

Third examination					
White		Nonwhite		Total	
Number	Per-cent	Number	Per-cent	Number	Per-cent
72	14.7	95	14.3	167	14.5
194	39.5	297	44.8	491	42.5
152	31.0	174	26.2	326	28.2
73	14.9	97	14.6	170	14.7
491	100.1	663	99.9	1,154	99.9
45		44		44	

were class II repeat but who had not been examined in more than a year. Of this group 1 is dead, 7 have moved and cannot be contacted, and 14 refused followup. The one patient with an initial class III in the "lost to cytological followup" column had a subsequent class II repeat, and she refused further examination.

None of the patients with an initial class IV appear in the "cytological followup" category because the class IV cytology requires biopsy.

Invasive cancers (26 patients) outnumbered in situ cancers (22 patients), and dysplasias (78 patients) outnumbered all cancers combined (48). The ratio of dysplasia to in situ carcinoma is 3.5 to 1 and dysplasia to invasive

carcinoma is 3 to 1. The dysplasia group includes all gradations—mild to moderate. If biopsy were performed on all patients with class II repeat smears, the diagnosis of dysplasia would be more frequent, since the II repeat classification signifies the presence of dyskaryotic superficial or intermediate cells, or both.

Of the patients whose first abnormal cytological finding was II repeat, 55 percent have reverted to negative status, at least temporarily. Fluctuation occurs between the II and II repeat status over a period of months or years. The following patterns are frequent:

II repeat→II repeat→II
 II repeat→II→II
 II repeat→II→II repeat

Of the 451 abnormal smears, 80.3 percent (362) were II repeat, 15.5 percent (70) were class III, and 4.2 percent (19) were class IV.

The incidence of cancer following a class IV smear was 57.9 percent, in contrast to 31.5 percent for class III and 4.2 percent for class II repeat.

The prevalence of invasive cervical cancer as determined by the initial screening was 1.8 per 1,000, and of in situ cancer it was 1.4 per 1,000. The combined prevalence was 3.2 per 1,000.

Cancers were found in five patients who had negative cytological findings on their first routine examination. These included one ovarian cancer, three in situ, and one invasive cervical cancer. Review of the original negative smears

Table 3. Number of class II repeat, III, and IV cytological smears and age-specific rates per 1,000 patients who received initial examination, Allegheny County

Age group (years)	Class II repeat				Class III and IV			
	White		Nonwhite		White		Nonwhite	
	Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000
29 and under	38	17.4	89	33.5	12	5.5	5	1.8
30-44	50	18.4	63	23.1	22	8.1	13	4.8
45-59	17	12.8	17	15.4	10	7.5	4	3.6
60 and over	6	9.0	9	14.7	0	0.0	10	16.4
Total	111	16.1	178	25.1	44	6.3	32	4.5

NOTE: The cytological classifications are defined on page 144.

Table 4. Results of followup of patients with abnormal cervical

Initial abnormal cytological findings	Total	Histological diagnosis completed or needed											
		Cervical cancer				Other cancer		Dysplasia		No malignancy		Biopsy refused	
		Invasive		In situ		Number	Percent	Number	Percent	Number	Percent	Number	Percent
		Number	Percent	Number	Percent								
Class II repeat . . .	362	9	2.5	6	1.7	2	0.6	40	11.0	22	6.1	1	0.3
Class III	70	9	12.9	13	18.6	0	.0	34	48.6	5	7.1	2	2.9
Class IV	19	8	42.1	3	15.8	0	.0	4	21.1	3	15.8	1	5.3
Total	451	26	5.8	22	4.9	2	.4	78	17.3	30	6.7	4	.9

NOTE: The cytological classifications are defined on page 144.

upgraded the cytological classification in only one case which was an in situ lesion.

No cancers were detected on the third routine screening and no biopsies were performed because there were no class III or IV smears.

Discussion

The concept of setting up special clinics for the purpose of cervical cancer detection deserves comment. This was the method most widely used when cervical cytology was first gaining general acceptance as a screening procedure (6-8).

Our reasons for continuing this method were twofold. Administratively it seemed most feasible, since medical care for indigent patients in Allegheny County is fragmented through services by numerous hospitals and private physicians. By using specialized clinics the quality of examinations can be controlled, and the cytological reading and followup of patients with abnormal findings can be centralized.

Since our program is primarily concerned with the prevention of invasive cancer, it is necessary to screen asymptomatic women who would not otherwise seek medical care.

Establishment of clinics in locations with less than optimum facilities presents practical difficulties. Even with disposable supplies, hauling equipment for short-term clinics is burdensome. The unesthetic aspects of some of the clinic locations are tolerable, but the limiting features are not always to the patients' best ad-

vantage. For example, we hesitate to perform a punch biopsy with the possibility of subsequent bleeding and no emergency room facilities nearby. However, this disadvantage is partially compensated in that such a patient is referred to the hospital clinic for biopsy.

At present, the trend is to do cytology on patients attending existing clinics. This eliminates the need for patient recruitment, because the patients are already motivated to attend the clinics for other reasons. This method has been successfully used in antepartum clinics (9), venereal disease clinics (10), and Planned Parenthood clinics.

The outpatient departments of hospitals provide a readily available source of patients (11). For example, at the clinic facility for the University of Pittsburgh medical school, all female patients attending any of the clinics are referred to a nurse who takes a smear while visualizing the cervix. Only the patients with obvious abnormalities by inspection are referred to the gynecology clinic for examination. Without routine pelvic examination, some gynecologic pathology is probably missed. At our clinics, approximately one out of every four women examined for the first time is referred to a private physician or clinic for treatment of noncancerous pathology.

Captive groups of patients are available in institutions such as detention homes, jails, tuberculosis hospitals, old-age homes, and mental hospitals. Many of these patients represent high-risk groups, and, while residing in these

Cytology, Allegheny County

Cytological followup					
Class II repeat		Class I or II		Lost to followup	
Number	Percent	Number	Percent	Number	Percent
60	16.6	201	55.5	21	5.8
0	.0	6	8.6	1	1.4
0	.0	0	.0	0	.0
60	13.3	207	45.9	22	4.9

institutions, the usual sources of medical care are not available to them.

In an attempt to reach women who rarely seek a physician's services and to avoid the expenditure of time and money required to motivate women to come to a clinic or physician's office, several "do it yourself" techniques have been devised (12, 13) to eliminate the need for a physician's service. It seems doubtful, however, that women in the high-risk groups can be convinced to take a cell specimen themselves. Despite the apparent simplicity of these techniques, some know-how is required to insert a tampon or other device into the vagina to obtain an adequate sample of material and to submit this sample to the appropriate laboratory. To perform this procedure herself, a woman must understand and accept the technique. If false negative smears are a frequent occurrence (14), a woman who might otherwise see a physician and receive an accurate diagnosis feels falsely secure and does not do so. Our experience with the difficulties in obtaining an adequate sample of cervical and endocervical cells with normal office facilities, light, and visualization is sufficient to question the adequacy of any less thorough technique.

Both the occurrence of class III and IV smears and the prevalence of cervical cancer have been lower in our population than in many previously reported studies (6-8, 15). There is no obvious explanation for this. Our population is not exceptionally young, with a mean age of 38 years on initial

screening, and includes 50 percent Negroes who are thought to be at high risk. All women who were not from the lower socioeconomic classes were not admitted to the clinic. Women not receiving public assistance were asked if they could afford to get the examination and a Papanicolaou test from a private physician. Those who indicated that they could were not examined and not included in this study. Of the group examined, about 50 percent received public assistance and the remainder had other sources of income.

Perhaps cancer existed but was being missed by the screening procedure. One invasive cancer, three in situ cancers, and one ovarian cancer were diagnosed at the time of the second routine examination. Only one of the in situ cancers could be accounted for as an under-reading of the smear from the first examination. The ovarian cancer was suspected on physical examination and was apparently unrelated to the abnormal cytological finding (class II repeat). The remaining cancers, none of which were clinically suspicious, may have been missed initially through faulty smear-taking techniques or because of truly false negative smears (16). Assuming the cervical cancers were present at the time of initial screening, the cancer prevalence is only slightly increased to 1.6 per 1,000 in situ cancers and 1.9 per 1,000 invasive cancers. No cancers or even class III or IV smears were found on the third routine screening.

It is quite possible that the rate of 3.2 (or 3.5) cancers per 1,000 does not truly measure prevalence but reflects a combination of prevalence and incidence. Some of the population may have had previous cytology. Early in the program one of the questions patients were asked was whether or not they had had a previous "Pap" test or "a test for cancer of the womb," and, if so, when. The answers to this question were totally unreliable. Women usually knew when they last had a pelvic examination, but rarely knew if cytology was done at the time.

The low cancer rate might be due to our emphasis on prevention rather than treatment. Our communications with the public always stress the idea that this examination is essential for all women, every year. Women with symptoms have not been specifically encouraged to

come to our clinics, nor have we emphasized the "danger signals" of cancer. This approach may have led symptomatic patients to go to their private physicians or regular clinics. This does not imply that patients with symptoms do not come to our clinics, because symptoms are often elicited on questioning. But few patients come specifically because of symptoms.

A slightly greater proportion of Negroes than whites return for second and third examinations, and older women seem to return selectively. Both these findings may be related to our policy of accepting only low-income patients. During the past few years employment opportunities have increased in the Pittsburgh area, but older Negro women are the least likely to gain steady employment or to have employed husbands.

The higher rate of class III and IV smears among the whites than among nonwhites was totally unexpected and contrary to previous reports(17-22). Only the 60 and over age group showed the expected racial pattern. However, the finding of no class III or IV smears among the whites in that age group is unusual. The epidemiology of cervical cancer may be changing as the prevalence of the disease decreases.

The II repeat smear classification appears to have different implications from the class III and IV, not only with regard to the likelihood of cancer but with respect to the kind of women affected—younger and more frequently Negro. Extrinsic factors such as infection may be significant in stimulating the dyskaryotic lesion, although more data are needed.

The patient with a persistent II repeat smear presents a problem in management. In order to follow the natural history of these lesions we have refrained from doing punch biopsies indiscriminately. Certainly, if the patient develops a class III or IV smear during the course of followup, a cone biopsy is indicated. A persistent II repeat without regression or progression over a period of years is disturbing, primarily because of the possibility of losing the patient. The patient herself is not in danger so long as she returns for cytological followup every 3 to 6 months. Individual considerations include the duration of time that has elapsed

since the initial class II repeat, the number of repeated smears, the need for treatment of related conditions or other gynecologic pathology, the inconvenience created for the patient by repeated clinic visits, and especially the emotional attitude of the patient toward the followup process. At present, a cone biopsy is done only if continued cytological followup is not feasible.

Patients with an initial diagnosis of class II repeat who revert to class I or II continue to be followed because of the frequency of fluctuation between the II and II repeat classifications. Ideally, these women should be followed indefinitely. We stop pursuing unresponsive patients after they have two negative smears a year apart.

By the time of the third routine screening, dysplasia was the only lesion which appeared. We found no invasive or in situ carcinoma. If this finding remains constant as more patients are examined, it would seem that invasive cancer arises from a pre-existing dysplastic lesion. (1-3,23,24). The large number of patients with dysplasia compared with the number having invasive cancers suggests that dysplasia exists for a long period of time before malignant transformation or that it is a reversible lesion, or both.

Summary

Since November 1962, medically indigent women in Allegheny County, Pa., have been screened for cervical cancer at clinics located throughout the county. By the end of June 1965, 14,010 women had an initial examination, 4,607 a second-year examination, and 1,154 a third-year examination.

The rate of abnormal cytological findings on first screening was 2.6 per 100; of those initially negative, the abnormal rate on second examination was 1.7 per 100, and on third examination it was 0.6 per 100. Of 26 patients with invasive cancers, 25 were found to have these cancers on initial examination; a rate of 1.8 invasive cancers per 1,000 women. Of 22 patients with in situ carcinomas, 19 were detected on initial screening; a rate of 1.4 in situ cancers per 1,000 women. Dysplasia was histologically diagnosed in 78 patients. The cervical cancers diagnosed in four patients on the second routine

screening were probably present, but overlooked, on the first examination. On the third-year routine examination, none of the patients were found to have cancer or class III or IV smears.

The age and race distribution of the patients with abnormal cytological findings was not consistent with the distribution found in other surveys. The highest age-specific rate of abnormal smears per 1,000 women screened for the first time was found among nonwhite women aged 60 years and over. This rate was 16.4 per 1,000 in contrast to 0 for the white women in the same age group. In the younger age groups, the rates were higher for whites than for Negroes. The overall rates were greater for the whites, 6.3 per 1,000, than for the Negroes, 4.5 per 1,000.

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Program Notes

Washington Council on Alcoholism

Representatives from 10 Washington cities recently organized a statewide coordinating council on alcoholism. The council was set up to work with the Washington State Department of Health in creating a better public understanding of alcoholism, to help establish more local treatment rehabilitation facilities, and to promote "legislation that will recognize alcoholism as an illness rather than a crime."

Study of Cancer and Pesticides

Under a \$103,744 grant from the Public Health Service's pesticides program, the New York State Department of Health will undertake a 1-year study to determine possible associations between cancer and pesticides as well as other environmental contaminants.

The investigation will consist of a survey of records of the New York Cancer Registry since 1940 and the plotting of more than 350,000 cancer deaths according to types of malignancy, age, sex, occupation, and geographic location. Similar analysis will be made of records on 120,000 living persons diagnosed as having cancer during the past 5 years.

D.C. Medic Alert System

To aid in emergency diagnosis and treatment, the District of Columbia Department of Public Health recently started a Medic Alert system to identify certain clinic and hospital patients with known medical problems.

The Medic Alert insignia and the emergency symbol of the American Medical Association are stamped on a bracelet or necklace which shows the patient's name and the type of medical problem.

The patient's medical history is entered in Medic Alert files in California. Then in an emergency it can

be relayed anywhere in the world to physicians and others who recognize the Medic Alert emblem.

Control of Rabies in Illinois

The Illinois Department of Public Health recently urged cat owners to vaccinate their animals against rabies. The number of rabid animals reported in the State in 1964 was 40 percent higher than for 1963. Sixty-seven laboratory-confirmed cases of rabid cats—55 more than the usual annual average of 12—had been reported in Illinois in 1965 by the end of August.

Chain of Convalescence Centers

In the next few years one of the nation's largest motel chains, Holiday Inns of America, will construct 400 medical centers, which will operate on a franchise basis with approximate rates of \$7.50 to \$15 daily. Each center will care for 50 or more patients. A 3-story, 150-patient center in Memphis, Tenn., is being completed in 1965 to serve as a model and training school for the system.

Best Accident Record in East

The New England and Middle Atlantic States had the most favorable fatal accident record of U.S. geographic areas in 1962-63, 43 per 100,000 population. The Mountain States recorded the highest accident death rate, 69 per 100,000, a rate 30 percent above that for the nation as a whole.

The geographic variation largely reflects the variation in fatal motor vehicle accidents.

Waste Disposal in Pennsylvania

The Pennsylvania Department of Health's Sanitary Water Board recently approved a waste permit to the Hammermill Paper Co. of Erie for an underground well to discharge pulp wastes at depths of 1,700 and

6,000 feet. The well is designed to eliminate foam and water discoloration from waste discharges into Lake Erie and to alleviate low-dissolved oxygen conditions near the present waste outfall.

Another recent permit, granted to the Masonite Corp., Wysox Township, authorizes spray-irrigation of industrial wastes and treated sewage. This method is expected to keep wastes out of the north branch of the Susquehanna River.

Food Poisoning Detection

Food and Drug Administration microbiologists Dr. Ezra P. Casman and Reginald W. Bennett have developed a new test in which antitoxins are used to identify the toxins that cause most food poisoning outbreaks in the United States. The method permits direct examination of the suspected food and detection of the poison through use of an antitoxin.

The new procedure is far more reliable than past methods and cuts the testing time by almost half, according to Casman. It is undergoing further tests in FDA district laboratories.

Oregon Child Abuse Law Revised

The 1965 Oregon legislature revised the State's 1963 battered child law to make it into a broader, more workable instrument of justice.

The law now covers: "Any physical injury to a child of the age of 12 or under caused by blows, beating, physical violence or abuse where there is some cause to believe that such physical injury was intentionally or wantonly inflicted and includes *wanton neglect which leads to physical harm to the child.*" (The italicized words are the new addition.) The new phraseology enables the State to investigate cases of willful or neglectful child starvation.

Items for this page: Health departments, health agencies, and others are invited to share their program successes with others by contributing items for brief mention on this page. Flag them for "Program Notes" and address as indicated in masthead.
